Agenda item : G-1.4

41 st Argos Operations Committee meeting
prepared by CLS
date : May 14th, 2007

STATUS OF NON ENVIRONMENTAL ACTIVITY IN 2006-2007

Background:

Non-environmental activity include "sensitive use" programs operated by governmental or non-profit organizations for national defense, homeland security, law-enforcement, humanitarian operations and programs approved for "episodic use" because of potential risk of loss of life such as expeditions and yacht races. Technical programs dedicated to operate, test or improve the system and to design and produce users platforms are not included in the non-environmental activity.

Since the 37th Operations Committee meeting, in order to satisfy the request of breaking down the analysis of non environmental activity in several categories, it was proposed to use the same measurement units which have been used in the Argos system for a long time : the transmitting platforms calculated as PTT-days cumulated and averaged on a period of time (= numbers of PTTs transmitting every day and averaged over one month, quarter, etc) and the active platforms defined as the number of platforms seen at least once in a month.

At the 38th Operations Committee meeting, it was decided (action item 38-4 N/C) to develop a metric and mechanism to calculate the percentage of the Argos system capacity used by the non environmental applications and to assess that it remains within the 5% ceiling. The proposed measurement unit is the Erlang and the percentage is calculated on the basis of a Argos 2 instrument capacity of 11 Erlangs which guarantees a minimum 50% elementary probability of reception.

Non environmental activity in 2006-2007

Over the year 2006, the averaged percentage of system use by programs included in the sensitive use category has been **2.26%** of the system capacity.

The tables give for 2006 and the first quarter of 2007 the use in transmitting and active platforms for non-environmental applications and the resulting number of transmitting days per month. It shows an increase mainly in the homeland security and humanitarian operations and also that the active platforms in these applications are transmitting very differently : 29 days per month on average in homeland security while only 8 days in humanitarian operations.

In 2007, the average number of non-environmental transmitting platforms is **1051**, while the average number of non-environmental active platforms is **1542**. On average, the non-environmental platforms are transmitting **20 days** per month.

The two following pies gives the breakdown of activity between non-environmental applications : episodic, homeland security, law enforcement, humanitarian operations for 2007 in operating (transmitting every day) and active (seen at least once in a month) platforms.

"Homeland security" is again the most important non environmental application in active platforms with **662** active platforms (44%) and it remains the most important in operating platforms with **633** operating platforms (61%). For the first quarter of 2007, the average number of transmitting platforms for the entire Argos system is **9281**, while the average number of active platforms is **16510**.
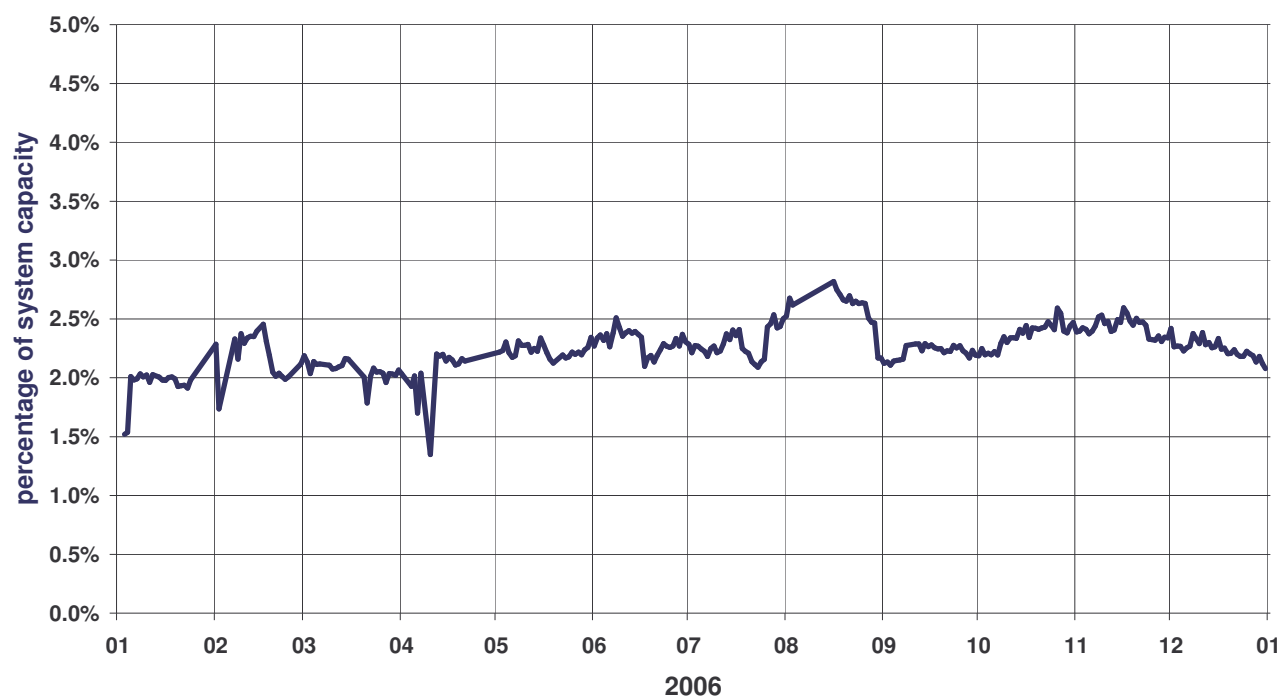
The maps give the system occupancy o **May 11th, 2006** for a period of 12 hours allowing all transmitting platforms to be viewed by all satellites. The first map shows the entire Argos system occupation with **9058** platforms using **2.54** Erlang, i.e. **23.1%** of the system capacity. The maximum activity is observed in South America with approximately 6 Erlang. The second map shows the sensitive non environmental activity on the same day with **824** platforms using **0.20** Erlang and a maximum of **1.80** Erlang in South Asia.

As agreed, the sensitive non environmental activity is measured weekly on a 12 hours period, and the results for 2007, until end of April, are given in the following graph and table.

System occupation in 2006

Week	All Platforms (Erlang)	Sensitive use (Erlang)	Percentage of system capacity
1	2.16	0.167	1.52%
2	2.17	0.221	2.01%
3	2.13	0.218	1.98%
4	2.03	0.210	1.91%
5	2.26	0.251	2.29%
6	2.23	0.256	2.33%
7	2.20	0.258	2.35%
8	2.18	0.221	2.01%
9	2.24	0.233	2.12%
10	2.19	0.233	2.12%
11	2.16	0.232	2.10%
12	2.05	0.221	2.01%
13	2.15	0.215	1.96%
14	2.15	0.215	1.96%
15	1.98	0.212	1.93%
16	2.24	0.242	2.20%
17	2.18	0.237	2.15%
18	2.32	0.244	2.22%
19	2.30	0.254	2.31%
20	2.30	0.257	2.34%
21	2.29	0.241	2.19%
22	2.28	0.246	2.24%
23	2.24	0.261	2.37%
24	2.30	0.264	2.40%
25	2.31	0.241	2.19%
26	2.25	0.250	2.27%
27	2.18	0.250	2.27%
28	2.28	0.243	2.21%
29	2.29	0.265	2.41%
30	2.28	0.235	2.14%
31	2.37	0.275	2.50%
32	2.38	0.288	2.62%
33	2.45	0.310	2.82%
34	2.41	0.297	2.70%
35	2.38	0.272	2.47%
36	2.35	0.236	2.14%
37	2.38	0.251	2.29%
38	2.39	0.247	2.25%
39	2.32	0.250	2.27%
40	2.27	0.247	2.25%
41	2.31	0.258	2.35%
42	2.28	0.268	2.44%
43	2.29	0.269	2.44%
44	2.26	0.273	2.48%
45	2.25	0.264	2.40%
46	2.28	0.265	2.41%
47	2.32	0.276	2.50%
48	2.29	0.259	2.36%
49	2.30	0.249	2.27%
50	2.32	0.262	2.38%
51	2.21	0.248	2.25%
52	2.22	0.245	2.23%

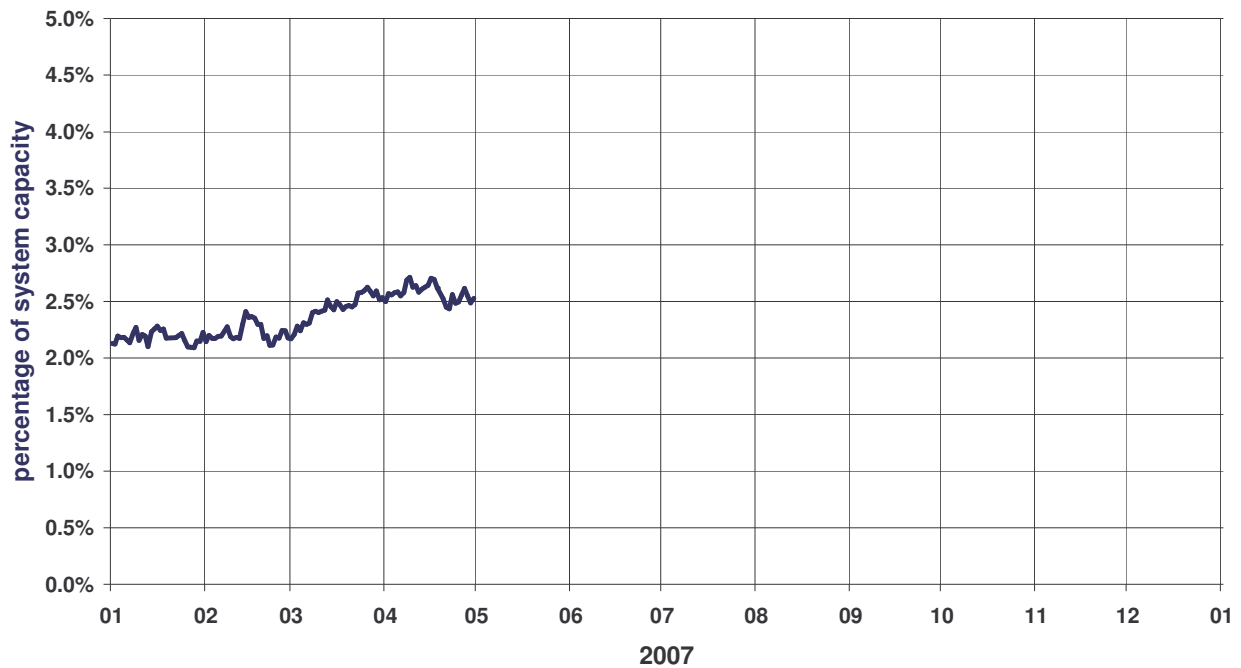**Non Environmental Use in percentage of the system capacity**

Average percentage of system capacity used by sensitive applications in 2006 :
2.26%

System occupation in 2007

Week	All Platforms (Erlang)	Sensitive use (Erlang)	Percentage of system capacity
1	2.09	0.234	2.13%
2	2.18	0.244	2.22%
3	2.23	0.248	2.25%
4	2.21	0.240	2.18%
5	2.25	0.236	2.15%
6	2.23	0.241	2.19%
7	2.23	0.239	2.17%
8	2.28	0.253	2.30%
9	2.33	0.247	2.24%
10	2.35	0.254	2.31%
11	2.32	0.267	2.43%
12	2.37	0.270	2.45%
13	2.35	0.289	2.63%
14	2.33	0.283	2.57%
15	2.42	0.298	2.71%
16	2.46	0.298	2.70%
17	2.37	0.282	2.56%
18	2.42	0.278	2.53%

Non Environmental Use in percentage of the system capacity

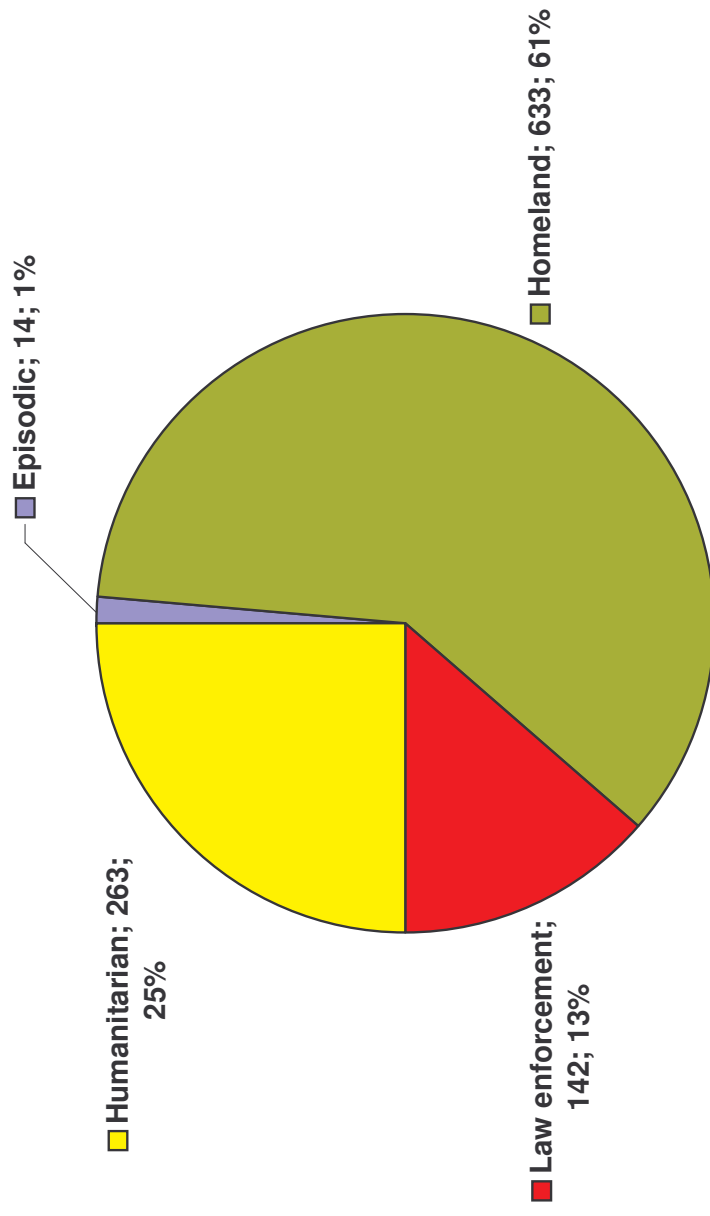**Average percentage of system capacity used by sensitive applications in 2007 :
2.37%**

Non-environmental activity in 2006

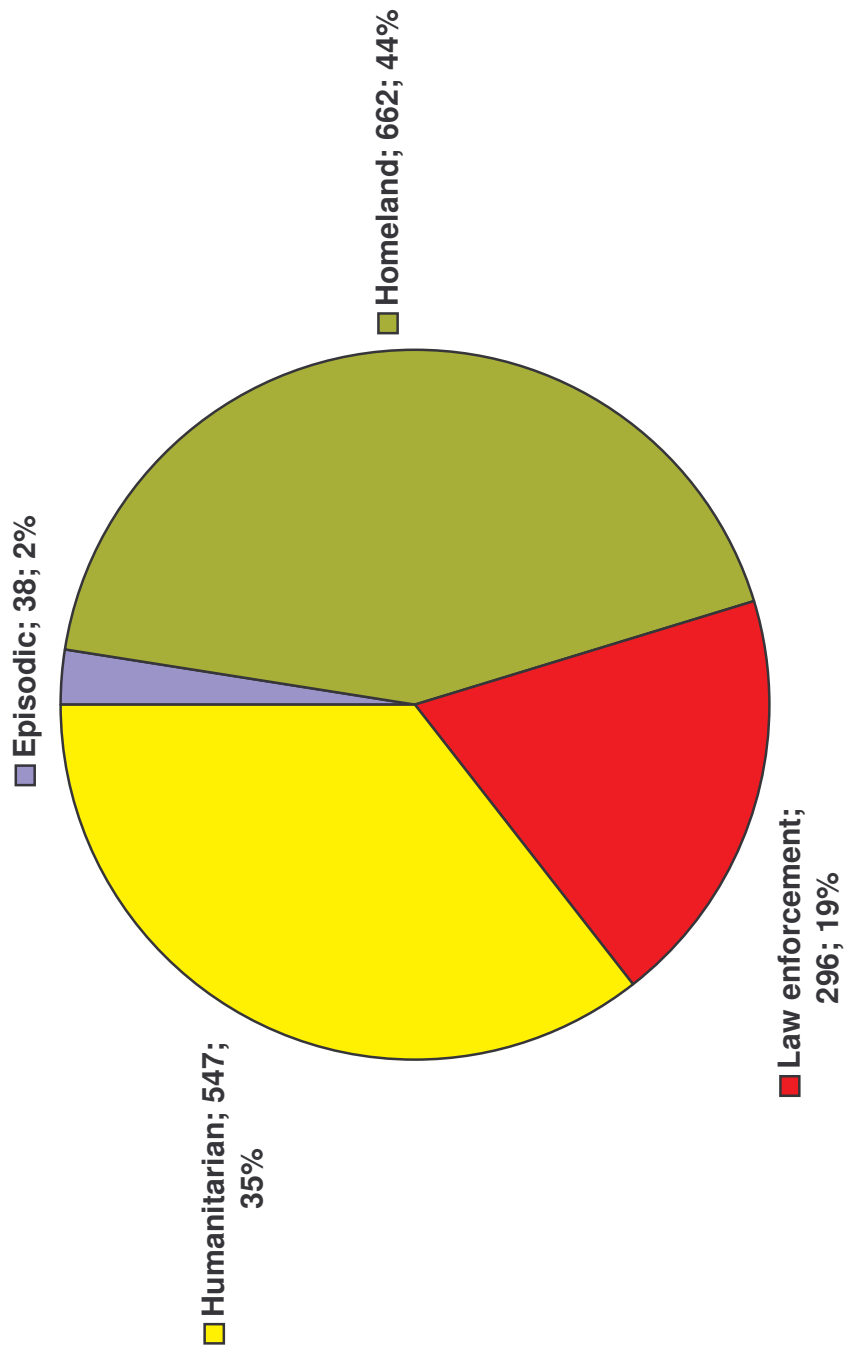| Quarters	Episodic	Homeland	Law enforcement	Humanitarian	Total
2006/1	45	473	128	171	817
2006/2	37	521	145	173	876
2006/3	53	571	131	167	921
2006/4	51	565	130	164	910
2006 operating platforms	46	533	133	169	881
2006 active platforms	105	548	274	592	1519
Transmitting days per month	13.2	29.2	14.6	8.5	17.4

Non-environmental activity in 2007

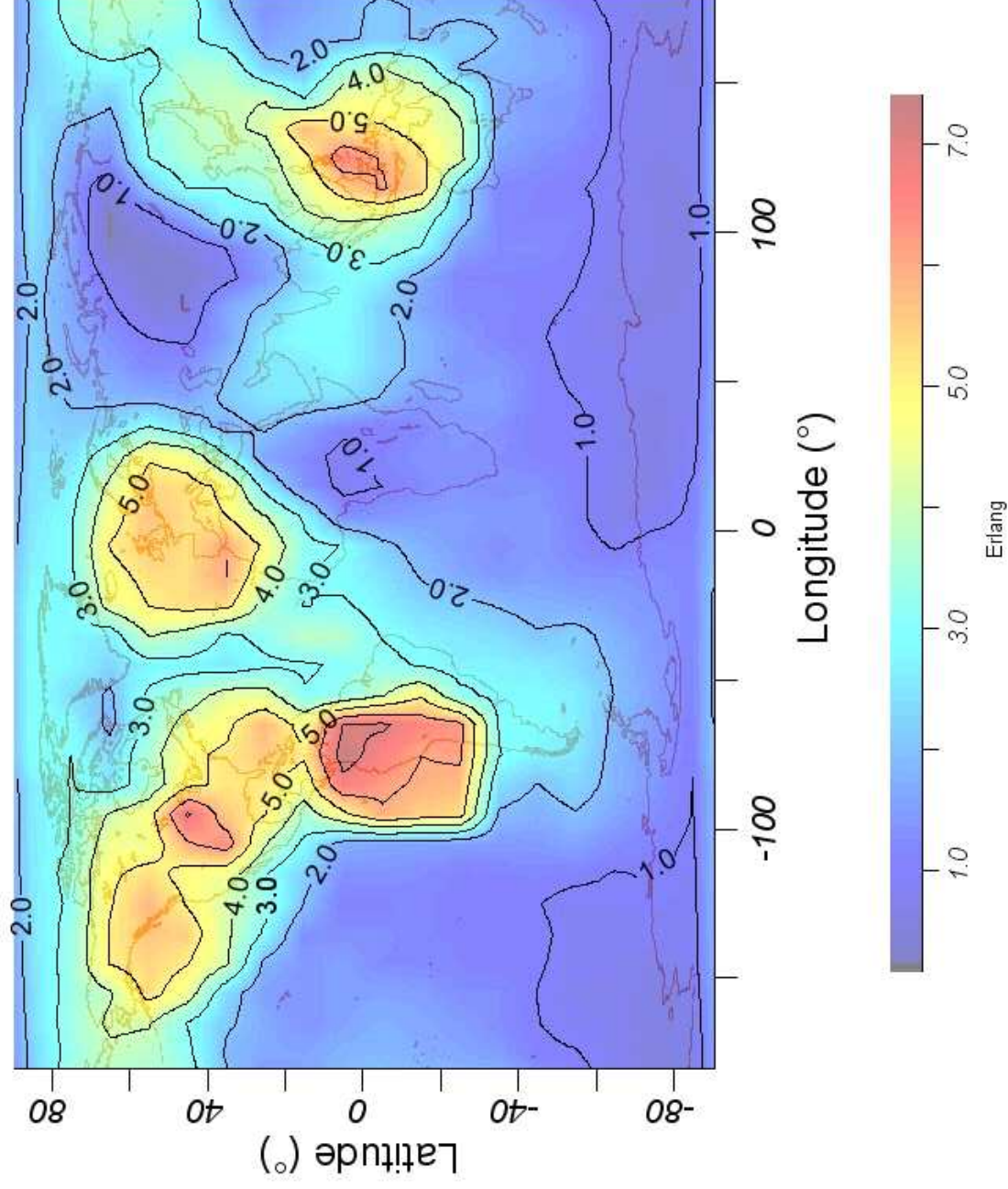| Quarters	Episodic	Homeland	Law enforcement	Humanitarian	Total
2007/1	14	633	142	263	1051
2007/2	0	0	0	0	0
2007/3	0	0	0	0	0
2007/4	0	0	0	0	0
2007 operating platforms	14	633	142	263	1051
2007 active platforms	38	662	296	547	1542
Transmitting days per month	11.2	28.7	14.4	14.4	20.4

2007 Non environmental activity in OPERATING platforms
(Total NE = 1051, Argos = 9281)

Episodic; 14; 1%

Humanitarian; 263; 25%

Law enforcement; 142; 13%

Homeland; 633; 61%

2007 Non environmental activity in ACTIVE platforms (Total NE = 1542, Argos = 16510)

- Episodic; 38; 2%
- Homeland; 662; 44%
- Humanitarian; 547; 35%
- Law enforcement; 296; 19%

System occupancy (All) 2.54 Erlang (2007/05/11) NB: 9058

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System occupancy (SU_NENV) 0.20 Erlang (2007/05/11) NB: 824

Longitude (°)

Latitude (°)

Erlang

0.00 0.40 0.80 1.20 1.60

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